

Preference is given to letters commenting on contributions published recently in the *JRSM*. They should not exceed 300 words and should be typed double spaced

Effectiveness of cycle helmets and the ethics of legislation

Professor Sheikh and his colleagues (June 2004 *JRSM*¹) argue for compulsion in the use of helmets by cyclists, referring to a previous paper of theirs² claiming that the rate of head injury amongst serious casualties fell 3.4 percentage points (PPs) more for cyclists than pedestrians during a period in which measured on-road helmet use increased by 5.8 PPs, a rate of increase of less than 1 PP per annum. It was assumed that all of the advantage for cyclists was due to increasing helmet use. They concluded that cycle helmets prevent 60% of serious head injuries. Clearly they miscalculated. With a prevailing rate of head injury amongst serious casualties of about 30%, as in this case, and helmets 60% effective, a 6 PP increase in helmet wearing would reduce the head injury rate by only $6 \times 0.18 \text{ PPs} = 1.09 \text{ PPs}$, not the 3.4 PPs assumed to be a 'helmet effect'. If all the observed improvement were due to helmet use, then the effectiveness would be around 190%.

The authors' assumption, in their *JRSM* paper, of a linear relationship between fractionally rising helmet use and population level injuries is speculative and is contradicted by experience in countries where helmet use increased at more than ten times the rate in Britain. In both Western Australia and New Zealand, helmet use increased from negligible levels to more than 80% in around eight years, yet follow-up studies^{3,4} did not show long-term benefits for the cyclist populations relative to control groups. Study of injury trends in each state of Australia for the period when helmet laws were passed shows stable characteristics, revealing no evidence of extra prevention due to legislation coming into force.⁵ Thus international evidence indicates that the authors' interpretation of British data is in error. It must be stressed that hospital-based injury data include both off-road and on-road injuries. Road casualty data specifically show that rising helmet use is associated with cyclists' injuries getting more severe relative to other road users. An alarming association with increased risk of death has twice been reported.^{6,7} Risk compensation by helmeted cyclists is the most plausible explanation.

The case for only cyclists to wear helmets is weakly founded. Estimates of risk⁸ may be calculated from routinely collected casualty and use data. In pedestrians, risk per mile travelled is about 60% higher than in cyclists. Pedestrians are far more vulnerable than cyclists, facing a

2% risk of death in a reported road accident, as against 0.7% for cyclists.⁹ A scenario of the disastrous consequences of promoting walking helmets has been proposed.⁷ Comparison with risk in driving requires certain adjustments to enable a semblance of like for like comparison. Despite the marginalized condition of cycling in Britain, the risk per hour travelled may be as low as the EU average for drivers. There is no case for distinguishing cyclists as a high-risk group.

The one clear population-level effect of helmet laws that has been widely reported is the deterrence of cycling. In every case where data are available, cycle use has fallen by 25–50% when a helmet law was enforced.^{10,11} This has a direct consequence on the risk of death in cycling. Study of international evidence points to a reliable relationship between the amount of cycling and the risk in cycling¹²—a power-law relationship with an index value of around 0.4. A fall in cycle use of 50% would increase risk per cyclist by more than 50%, whereas an increase in cycling of 100% would reduce the risk by almost 40%. Public health would benefit substantially.¹³ A report by the Commons Select Committee on Health specifically cited a resurgence in cycling as 'probably the most effective response' that could be made to address the obesity 'time bomb'. It is most likely that road deaths would fall overall; even in Britain one hour of cycle use is not more likely to result in a road death than one hour of driving, because the third-party risk from cycling is so low.⁸ With an increase in cycling, the advantage would swing to the bicycle.

Tripling the level of cycle use by 2012 in line with Government policy would dramatically reduce the risk in cycling, improve public health and most likely reduce road casualties overall. Helmet laws never achieved anything positive elsewhere; why should the British experience be any different?

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In their paper arguing for compulsory use of cycle helmets¹ Professor Sheikh and his colleagues accept that if compulsory helmets led to a long-term reduction in cycling the resulting bad effects on health could outweigh the reduction in head injuries. However, they offer only 'evidence in our possession' to suggest that the undoubted short-term reduction may not last. Can they be more specific?

There is something distasteful about a society's compelling some of its most vulnerable members (in the context of road safety) to protect themselves against the mistakes or misdeeds of the less vulnerable. Car seat belts protect their wearers in accidents which may result from their own or other people's actions, more or less indifferently, whereas serious head injuries to cyclists, against which helmets give some protection, are far more likely to result from something done by other road users.

I was sorry to see the authors commending the separation of cyclists and motorized traffic as a safety measure. We already have it by law on motorways and in the exclusion of the heaviest vehicles from some roads, and voluntarily in that most cyclists choose to keep off busy main roads when they can; but, unless somebody builds a duplicate network of real roads (not gravel tracks) all over the country and in all towns and villages, with the two systems never meeting at roundabouts, etc., cyclists and other users must share most roads. This can best be done if all users recognize that the others have as much right to be there as they have, with some bias by the less vulnerable in favour of the more vulnerable. Cycling in France, I have found drivers of all motor vehicles to be much more considerate towards cyclists than is usual in this country. I do not see why, with suitable education and persuasion, British drivers should not become more like French in this respect, making further segregation irrelevant.

A thought prompted by the article: seat belts give some protection to their wearers, and air bags give more, offset by the near-certainty of damage to the hearing of some accident victims (not to mention victims of spurious

deployment). Helmets would offer probably better protection, with no bad side effects; they are routinely worn by participants in motor sports, including those in saloon cars. Compulsory helmets in cars would presumably lead to a reduction in car use, which would be good for the public health (less pollution, fewer accidents, more exercise). The case, on health grounds, is probably stronger than that for cyclists. The psychological difficulties are obviously enormous, but I wonder whether the general failure even to discuss the idea is another manifestation of our collective obsession with the car.

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Authors' reply

Mr Wardlaw continues to overlook substantive evidence on the effectiveness of cycle helmets. A Cochrane systematic review of five well-conducted case-control studies concluded that helmets 'provide a 63%–88% reduction in the risk of head, brain and severe brain injury for all ages of bicyclists'.¹ Furthermore, a wide-ranging review commissioned by the Department of Transport concluded: 'there is now a considerable amount of scientific evidence that bicycle helmets have been found to be effective at reducing head, brain and upper facial injury'.² We are grateful to Wardlaw for pointing out a statistical error in our previous paper,³ however, a minor mistake in the discussion should not be allowed to divert attention from the main findings. During a period of increasing cycle helmet use the rate of serious head injuries fell, and by a greater margin than the decrease in a comparator pedestrian group. We suggested that the most plausible explanation for this difference was helmet wearing; Wardlaw offers no alternative explanation.

The effects of helmet wearing on injury rates have now been reported from several different countries. We wonder why Wardlaw continues to refer to Australasian data when more recent evidence has come from a large well-conducted study in Canada.⁴ Four Canadian provinces enacted helmet-wearing legislation between 1995 and 1997, while the remaining eight did not. From 1994–1995 to 1997–1998 cyclist head injury rates fell in all provinces, but the reduction was significantly greater in provinces that had legislated. Other injuries also fell in both sets of provinces, but the difference between them was not significant. The reduction in head injuries points to a benefit from helmet-wearing, while the similarity of other-injury rates suggests that patterns of cycling were not affected. Since Wardlaw questions the ability of others to grasp the big picture, these oversights are remarkable.

We have more sympathy with Professor Swanson's argument on the separation of cyclists and motorized traffic. It would indeed be better to change motorists' attitudes to cyclists than to allow the current attitude to persist. It might also be possible to confine at least some heavy goods vehicles to trunk roads. However, quite apart from the planning problems this proposal would present, a cycle helmet law would be far cheaper and quicker to implement.

This takes us to the ethical arguments. Swanson presents two: first, that it is unjust to impose the burden of protection on the vulnerable party rather (be that a child, or perhaps any cyclist) than on motorists; second, that it is irrational to concentrate on one risk (the risk of head injury to an unprotected cyclist) rather than any other comparable risk (for example, the risk of head injury to an unprotected motorist).

The second argument is weak. First of all, interventions to control risk should be assessed on the evidence. Our argument regarding the evidence is quite modest: we believe that the available evidence does support the proposition that cycle helmets are safe and effective in protecting cyclists from head injury. This is the essential empirical point in the ethical argument for legislation. We do not rule out other interventions to control other risks; they are not our concern here. Second, in the muddy world of public policy, consistency may be an impossible ideal. So long as policies can be justified piece by piece on their own merits, and so long as they do not lead to obvious contradictions or injustice, that is about as much as we can hope for. Arguments that we do not intervene in some other comparable cases—so why do we intervene in this case?—are arguments for never doing anything.⁵

The first argument is more important. It is a defensible principle in ethics that one should not blame or punish victims for the responsible or irresponsible acts of those who have harmed them. Swanson is right to say that many, perhaps most, injuries to cyclists are caused by others. However, it is also true that we bear some responsibility for taking care of ourselves. Prevention of injury takes primacy over apportioning blame for the injury; to an injured cyclist the knowledge that someone else was responsible is of little comfort.

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Osteophytes and throat symptoms

The case report by Mr Alaani and colleagues (April 2004 *JRSM*¹) adds to our knowledge. With reference to the last sentence—'With cautious technique, secondary instability of the cervical spine leading to neurological damage should be wholly avoidable'—may I refer to a review of earlier papers² and in particular to the need for cervical spine fusion in addition to osteophyte removal? The postoperative X-ray, showing a well preserved disc space at the affected level, indicates the possibility that instability may develop in this case. The osteophytes were probably providing some stability.

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Art about hospitals

Nigel Cooke (April 2004 *JRSM*¹) writes of Lowry and Hepworth being among the few who have depicted life and events in hospitals. More recently than either, Susan Macfarlane was commissioned to make a series of oil paintings and drawings about the diagnosis and treatment of breast cancer. Some forty of these were exhibited at the Barbican Centre, London, for six weeks in 1995 and drew wide acclaim. The exhibition, 'A Picture of Health' marked International Women's Week and was sponsored by Bristol-Myers Squibb.

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Rapid-access ultrasonography for testicular lesions

In their article on the two-week cancer wait for urology (June 2004 *JRSM*¹), Mr Allen and his co-workers suggest an alternative scheme for assessing testicular problems—namely, rapid-access ultrasonography. In my area of Chorley & South Ribble PCT this exists already, and conversations with colleagues indicate that it does so elsewhere. Indeed, an ultrasound request for scrotal imaging querying a sinister outcome will certainly be seen within two weeks and, if the request form is backed by a telephone contact with the ultrasound team, may be attained within a few days.

It is not then a question of 'offering GPs rapid access' but ensuring that communication between urology, radiological and general practice teams is effective, so that such imaging is considered part of the 'normal' work-up of suspected testicular pathology. My experience is that patients are very satisfied with this approach and the two-week cancer rule is reserved for those who really do need it.

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Addison and Bright at the St Alban's Club

Dr Pearce's interesting survey of Thomas Addison's life (June 2004 *JRSM*¹) draws attention to the subject's melancholic nature. I can add a footnote on this subject.

I have recently completed the history of the St Alban's Medical Club which, with its brother club the Sydenham, has continuous records starting in the last two decades of the eighteenth century. Thomas Addison was elected to the St Alban's Club in 1830 but had resigned less than three years later. His letter of resignation survives in the club's archives at the Wellcome Institute for the History of Medicine. At the time the leading figures in the club were Charles Locock (who later became Queen Victoria's accoucheur) and his boyhood friend Thomas Waterfield. Several of the surgeons and the surgeon-apothecaries in the

Club had served with Wellington in the Peninsular War and at Waterloo. They were a group of extroverts whose bets and wagers were settled in claret and champagne. Clearly Addison, not by nature clubbable, felt that this was not his scene. His friend and colleague Richard Bright, elected a little later and after Addison's resignation, was happier on such hearty occasions, but the treasurer's book often records that 'Dr Bright came after dinner'. Neither of these famous men, melancholic or not, played a leading part in the club's jolly evening meetings.

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The sickly Stuarts

In his review of Professor Holmes' book *The Sickly Stuarts—the Medical Downfall of a Dynasty* (June 2004 *JRSM*¹) Milo Keynes indicates that the name Stuart (or Stewart) originated with Lord Darnley. In fact it came from Robert II's father two centuries earlier. The dates of Henry, Duke of Gloucester were 1640–1660, not 1620–1640 as noted. Keynes suggests that hyperparathyroidism might explain the ills of James VI and I, but porphyria seems more likely. His complex of symptoms is difficult to disentangle, including gout, rickets and arthritis, but he complained of darkened urine and realized that his reasoning was impaired when this happened. His mother, Mary Queen of Scots, suffered from blistering of her hands in strong sunlight, suggesting a familial porphyria. A more detailed account of James' illness may be found in *Purple Secret: Genes, 'Madness' and the Royal Houses of Europe* by Röhl, Warren and Hunt.²

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